



TITLE:

The Papers Published by the Staff Members of the Institute from July 1983 to June 1984

AUTHOR(S):

CITATION:

The Papers Published by the Staff Members of the Institute from July 1983 to June 1984.
Bulletin of the Institute for Chemical Research, Kyoto University 1985, 62(5-6): 356-376

ISSUE DATE:

1985-02-15

URL:

<http://hdl.handle.net/2433/77082>

RIGHT:

The Papers Published by the Staff Members of the Institute from July 1983 to June 1984

Nuclear Chemistry

Third-Harmonic Susceptibility $|\chi_3|$ of Quasi-One-Dimensional Superconductors Nb_3S_4 , Nb_3Se_4 , and Nb_3Te_4 , T. Ishida, H. Mazaki, and I. Nakada, *J. Phys. (Paris) C3*, **44**, 1701 (1983).

Superconductive Behavior of a Quasi-One-Dimensional Nb_3Se_4 , T. Ishida, K. Kanoda, H. Mazaki, and I. Nakada, *Phys. Rev. B*, **29**, 1183 (1984).

Measurement of the Mass of the Electron Neutrino using Electron Capture in ^{163}Ho , S. Yasumi, F. Ochiai, M. Ando, H. Maczawa, H. Kitamura, K. Itoh, M. Maruyama, F. Fujioka, K. Ishi, T. Shinozuka, K. Sera, T. Omori, G. Izawa, M. Yagi, K. Masumoto, K. Shima, T. Mukoyama, Y. Inagaki, and H. Taketani, *Proc. Intern. Europhysics Conf. High Energy Physics, Brighton, U.K., July, 1983*, p. 391.

M-Shell Photoelectric Effect for Dy, T. Mukoyama, *Proc. 7th Workshop of the Mass of the Electron Neutrino, KEK Report No. KEK 83-15*, 1983, p. 30. Review in Japanese.

Calculation of M-Shell X-Ray Emission Rates for Dy, T. Mukoyama, *Proc. 7th Workshop of the Mass of the Electron Neutrino, KEK Report No. KEK 83-15*, 1983, p. 31, in Japanese.

Atomic Processes Accompanying M-Shell Electron Capture, T. Mukoyama, *7th Workshop of the Mass of the Electron Neutrino, KEK Report No. KEK 83-15*, 1983, *Proc. 7th Workshop of the Mass of the Electron Neutrino, KEK Report No. KEK 83-15*, 1983, p. 61, Review in Japanese.

On the Momentum Representation of the Relativistic Hartree-Fock-Roothaan Wavefunctions, T. Mukoyama and T. Kagawa, *J. Phys. B: At. Mol. Phys.*, **16**, 187 (1983).

Electronic Relativistic Effects in K-Shell Ionization by Proton Impact, T. Mukoyama and L. Sarkadi, *Phys. Rev. A*, **28**, 1303 (1983).

Relativistic Effect on the L_3 -Shell Binding-Energy Increase in Ion-Atom Collisions, T. Mukoyama, *Bull. Inst. Chem. Res., Kyoto Univ.*, **62**, 1 (1984).

Slater Transition-State Calculation of One-Photon-Two-Electron Excitation Energies, T. Mukoyama and H. Adachi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **62**, 8 (1984).

The Discrete Variational Calculations of the Overlap Integrals and the Dipole Matrix Elements, T. Mukoyama, K. Tanigushi, and H. Adachi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **62**, 13 (1984).

Angular Distribution of M X Rays Accompanying Photo-electric Effect by Linearly Polarized Photons, T. Mukoyama, *Proc. 9th Workshop on the Mass of the Electron Neutrino, KEK Report No. KEK 83-24*, 1984, p. 19, in Japanese.

X-Ray Spectra near to the $5p \rightarrow 3s$ Peak during Decay of ^{163}Ho , T. Mukoyama, *Proc. 9th Workshop on the Mass of the Electron Neutrino, KEK Report No. KEK 83-24*, 1984, p. 22, in Japanese.

Theoretical Calculation of M X-Ray Spectrum from Dy, T. Mukoyama, *Proc. 9th Workshop on the Mass of the Electron Neutrino, KEK Report No. KEK 83-24*, 1984, p. 28, in Japanese.

Analytical Calculations of Relativistic Radiative Transition Rates, T. Mukoyama and T. Kagawa, *Phys. Rev. A*, **29**, 1055 (1984).

M-Shell X-Ray Emission Rates for Rare Earth Elements, T. Mukoyama and H. Adachi, *J. Phys. Soc. Japon*, **53**, 984 (1984).

Inelastic Scattering of Polarized Protons and a Possible Hexadecapole-Shape Transition between the Light $^{74,76,78}\text{Se}$ and the Heavy $^{80,82}\text{Se}$ Isotopes, S. Matsuki, T. Higo, T. Ohsawa, T. Shiba, T. Yanabu, K. Ogino, Y. Kadota, K. Haga, N. Sakamoto, K. Kume, and M. Matoba, *Phys. Rev. Lett.*, **51**, 1741 (1983).

Fragmentation of Low-Lying Hexadecapole States in Even $^{74-82}\text{Se}$ and a RPA Calculation, K. Ogino, Y. Kadota, H. Haga, S. Matsuki, T. Higo, T. Shiba, N. Sakamoto, Y. Okuma, and T. Yanabu, *Phys. Lett.*, **130B**, 147, (1983).

Elastic and Inelastic Scattering of Vector Polarized Deuterons from Even Samarium Isotopes at 56 MeV, K. Hatanaka, N. Matsuoka, T. Saito, K. Hosono, M. Kondo, S. Kato, T. Higo, S. Matsuki, and K. Ogino, *Nucl. Phys.*, **A403**, 109, (1983).

Systematic Study of the (d, p) Reaction with 56 MeV Polarized Deuterons, K. Hatanaka, N. Matsuoka, T. Saito, K. Hosono, M. Kondo, S. Kato, T. Higo, S. Matsuki, Y. Kadota, and K. Ogino, *Nucl. Phys.*, **A419**, 530, (1983).

Multiple-Scattering Effect in the $^3\text{He}(p, pp)^2\text{H}$ Reaction at 65 MeV, S. Kakigi, K. Fukunaga, T. Ohsawa, A. Okihana, H. Nakamura-Yokota, T. Sekioka, S. Tanaka, and S. Kato, *Proceedings of the Tenth International IUPAP Conference on Few Body Problems in Physics (21-27 August 1983, Karlsruhe)*, Volume II, 555 (1984).

Induction of chromosome aberrations by 4.9 MeV Protons in Human Lymphocytes, T. Taketsuji, H. Takekoshi, and M.S. Sasaki, *Int. J. Radiat. Biol.*, **44**, 553 (1983).

PIXE Analysis of Water Solution Using Ion Exchange Filter, T. Yamada and H. Takekoshi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **62**, 17 (1984).

Design and Fabrication of Permanent Magnet Quadrupole Lens, Y. Ikeda, Y. Katayama, and Y. Iwashita, *Bull. Inst. Chem. Res., Kyoto Univ.*, **62**, 29 (1984).

The Quasi Free Process in the $^3\text{He}(\text{d}, \text{dd})\text{p}$ Reaction, A. Okihana, K. Fukunaga, S. Kakigi, T. Ohsawa, S. Kato, and S. Tanaka, Proceedings of the Tenth International IUPAP Conference on Few Body Problems in Physics (21-27 August 1983, Karlsruhe), Volume II, 545 (1984).

Analytical Chemistry

Liquid-liquid Distribution of 4-acyl-3-methyl-1-phenyl-5-pyrazolones and their Zinc Complexes, Umetani and M. Matsui, *Bull. Chem. Soc. Japan*, **56** 3426, 1983, review.

Studies on the Ionization Behavior of Rare Earth Elements in a Dinitrogen Monoxide-acetylene Flame using Atomic Absorption Method, O. Fujino, S. Matsumura, and M. Matsui, *Bunseki Kagaku (Japan Analyst)*, **32**, 1983, review in Japanese.

The Distribution of Zinc Chloride and Bromide between Cation Exchanger and Methanol-water Solution, Iwasaki, M. Sugiyama, M. Matsui and T. Kumagai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 1983, review.

Determination of Barium in Sea Water by Graphite Furnace Atomic Absorption Spectrometry after Preconcentration and Separation by Solvent Extraction, M. Sugiyama, O. Fujino, and M. Matsui, *Bunseki Kagaku (Japan Analyst)*, **33**, E123, 1984, review in Japanese.

Physical Chemistry

Fourier Transform Infrared Study on the Phase Transitions of a Sodium Dodecyl Sulfate-Water System, T. Kawai, J. Umemura, and T. Takenaka, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 314 (1983).

An NMR Relaxation Study on the Proton Transfer in the Hydrogen Bonded Carboxylic Acid Dimers, S. Nagaoka, T. Terao, F. Imashiro, A. Saika, N. Hirota, and S. Hayashi, *J. Chem. Phys.*, **79**, 4694 (1983).

Raman Scattering of Adsorbed Molecules on Metal Surfaces —Current Topics on SERS, T. Takenaka, *Nippon Kinzoku-Gakkai Kaiho, (Bull. Japan. Inst. Metals)*, **22**, 792 (1983), Review in Japanese.

Vibrational Spectroscopy of Molecular Crystals under High Pressure, S. Hayashi, *Kagaku no Ryoiki (J. Japan. Chem.)*, **37**, 482 (1983), Review in Japanese.

Penetration of Lysine-Leucine Copolymers into Lecithin Monolayers from Underlying Aqueous Solutions, M. Nakagaki, E. Okamura, and S. Kubota, *Bull. Chem. Soc. Japan*, **56**, 3730 (1983).

Fourier Transform Infrared Spectra and Micelle Formation of Sodium *n*-Alkane-sulfonates in Aqueous Solution, T. Kawai, J. Umemura, and T. Takenaka, *Colloid & Polymer Sci.*, **262**, 61 (1984).

Polarized FT-IR Spectra of Oriented Water Molecules in a Liquid Crystal, N. Kimura, J. Umemura, S. Hayashi, and T. Takenaka, *J. Molecular Structure*, **116**, 153 (1984).

Ab Initio Molecular Orbital Study on the Formic Acid Dimer, S. Hayashi, J. Umemura, S. Kato, and K. Morokuma, *J. Phys. Chem.*, **88**, 1330 (1984).

The Amber Route-the Northern Route, T. Takenaka and T. Muroga, *Kagaku-shi Kenkyu*, (*J. History Sci. Japan*), Series II, 23, 121 (1984), in Japanese.

Infrared and Raman Spectroscopic Measurements of Thin Surface Films, T. Takenaka, "Makugaku Jikkenho", Ed. by M. Nakagaki, Kitami shobo, Tokyo, 1984, Chapter 2, in Japanese.

Measurements of Membrane and Electrokinetic Potentials, M. Matsumoto, in "Makugaku Jikkenho," Ed. by M. Nakagaki, Kitami Shobo, Tokyo, 1984, Chapter 6, in Japanese.

Stability Measurements of Disperse Systems, M. Matsumoto, in "Electrical Phenomena at Interfaces," Ed. by A. Kitahara and A. Watanabe, Marcel Dekker, New York, 1984, Chapter 8.

High-Resolution Electron Microscopy of Structural Defects in Organic Crystals, T. Kobayashi, Y. Fujiyoshi, and N. Uyeda, *J. Crystal Growth*, **65**, 511 (1983).

Unit Cell Constants and Crystal Habit of Charge Transfer Complex of Zinc-Phthalocyanine with Amine, T. Kobayashi, K. Yase, and N. Uyeda, *J. Crystal Growth*, **66**, 553 (1984).

Analysis of the Incommensurate Structure in $\text{Sr}_2\text{Nb}_2\text{O}_7$ by Electron Microscopy and Convergent-Beam Electron Diffraction, N. Yamamoto and K. Ishizuka, *Acta Cryst.* **B39**, 210 (1983).

Electron Microscopy of tRNA Crystals I. Thin Crystals Negatively Stained with Uranyl Acetate, Y. Fujiyoshi, K. Morikawa, N. Uyeda, H. Ozeki, and H. Yamagishi, *Ultramicroscopy*, **12**, 201 (1984).

Electron Microscopy of tRNA Crystals II. 4Å Resolution Diffraction Pattern and Substantial Stability to Radiation Damage, Y. Fujiyoshi, N. Uyeda, K. Moikawa, and H. Yamagishi, *J. Mol. Biol.*, **172**, 347 (1984).

High Resolution Observations of Cellulose Microfibrils, J. Sugiyama, H. Harada, Y. Fujiyoshi, and N. Uyeda, *Mokuzai Gakkaishi* **30**, 98 (1984).

Quantitative Measurement of the Radiation Damage on Nucleic Acid by Electron Irradiation, H. Yamagishi, Y. Fujiyoshi, Y. Aoki, K. Morikawa, N. Uyeda and Y. Harada, *Denshi Kenbikyo (Electron Microscopy)*, **19**, 32 (1984), in Japanese.

Dielectric Behavior and Ferroelectric Transition of Copolymers of Vinylidene Fluoride and Trifluoroethylene, N. Koizumi, N. Haikawa, and H. Habuka, *Ferroelectrics*, **57**, 99 (1984).

Pressure Dependence of Ferroelectric Transition and Anomaly in Bulk Modulus in Copolymer of Vinylidene Fluoride and Trifluoroethylene, N. Koizumi, Y. Murata, and Y. Oka, *Japan. J. Appl. Phys.*, **23**, L324 (1984).

Formation of Pyroelectricity in Unoriented Polytrifluoroethylene, Y. Oka and N. Koizumi, *Japan. J. Appl. Phys.*, **23**, 748 (1984).

Magnetic and Dielectric Relaxations in Ferrites, K. Iwauchi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 324 (1983).

Dielectric Relaxation in Distributed Dielectric Layers, Y. Kita, *J. Appl. Phys.*, **55**, 3747 (1984).

Dielectric Analysis of Interfacial Polarization in Bilamellar Structure as Applied to Underwater Polystyrene Films, H.Z. Zhang, T. Hanai, and N. Koizumi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 265 (1983).

Dielectric Behavior of Liposomes of Large Size, K. Sekine, T. Hanai, and N. Koizumi, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 299 (1983).

Electromagnetic Properties, Chapter 13., N. Koizumi and T. Hanai, in "Chemistry Handbook, Fundamentals II", ed. by Chemical Society of Japan, Maruzen, Tokyo, 1984, in Japanese.

Colloid Chemistry in Connection with Unit Processes of Dissolving, Mingling, Blending and Dispersing., T. Hanai, in "Textbook on Processes in Cookery 3", ed. by Kinki Branch, the Society of Science of Cookery, 1984, Review in Japanese.

$\text{HBr}^+ (A^2\Sigma^+ \rightarrow X^2\Pi_i)$ Fluorescence Produced by Ne I Photoionization, T. Ibuki and N. Sugita, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 295 (1983).

Fluorescence Cross Sections and Electronic Transition Moments for the $A^2\Sigma^+ \rightarrow X^2\Pi$ Transition in HCl^+ by Photoionization. Comparison with the *ab initio* Calculations, T. Ibuki, N. Sato, and S. Iwata, *J. Chem. Phys.*, **79**, 4805 (1983).

Vibrational Relaxation of $\text{CO}^+ (A^2\Pi_i, v'=1)$ and $\text{CO}^+ (B^2\Sigma^+, v'=1)$ Ions in the Collision with CO Molecules, T. Ibuki and N. Sugita, *J. Chem. Phys.*, **79**, 5392 (1983).

Lifetimes of $N_2O^+(A)$, $CS_2^+(A)$, and $CS_2^+(B)$ States produced by Pulsed EUV Photons, T. Ibuki and N. Sugita, *J. Chem. Phys.*, **80**, 4625 (1984).

Inorganic Chemistry

An Experimental Study on Ca-P Ceramics and Bioactive Glass Coated Al_2O_3 Ceramic Implants (2nd report), S. Higashi, T. Yamamuro, T. Nakamura, K. Kakutani, T. Kokubo, and Y. Kitamura, *Chubunihon-Seikeigeka-Saigai-geka-Gakkaishi*, **26**, 1293 (1983), in Japanese.

Microstructural Characterization of Phase Separated Glasses, S. Sakka, *Glastechn. Ber. Sonderband LVIK 2*, 804 (1983).

Hydration of Silicate Glasses by Water Vapor at High Temperatures, T. Yoko, Z. Huang, K. Kamiya, and S. Sakka, *Glastechn. Ber. Sonderband LVIK 1*, 650 (1983).

New Type of Apatite-Containing Glass-Ceramics for Prosthetic Application, T. Kokubo, S. Ito, M. Shigematsu, T. Nakamura, T. Yamamuro, and S. Higashi, *Glastechn. Ber. Sonderband LVIK 1*, 695 (1983).

Preparation of Amorphous ZrO_2 Fibers by Unidirectional Freezing of Gel, T. Kokubo, Y. Teranishi, and T. Maki, *J. Non-Crystal. Solids*, **56**, 411 (1983).

Preparation and Properties of Ca-Al-Si-O-N Oxynitride Glasses. S. Sakka, K. Kamiya, and T. Yoko, *J. Non-Crystal. Solids*, **56**, 147 (1983).

Optical Absorption of Transition Metal Ions in Silica Coating Films Prepared by the Sol-Gel Technique, S. Sakka, K. Kamiya, K. Makita, and Y. Yamamoto, *J. Mat. Sci. Letters*, **2**, 395 (1983).

Copper-Alkali Ion Exchange of Alkali Aluminosilicate Glasses in Molten $CuCl$, T. Yoko, K. Kamiya, and S. Sakka, *Rev. Chimie Minerale*, **20**, 668 (1983).

Formation of Sheets and Coating Films from Alkoxide Solutions. S. Sakka, K. Kamiya, K. Makita, and Y. Yamamoto, *J. Non-Crystal. Solids*, **63**, 223 (1984).

Preparation of Oxide Glasses from Metal Alkoxides by Sol-Gel Method — Investigation on the Type of the Siloxane Polymers Produced in the Course of Hydrolysis of $Si(OC_2H_5)_4$, K. Kamiya, T. Yoko, and S. Sakka, *Yogyo-Kyokai-Shi (J. Ceramic Soc. Japan)*, **92**, 242 (1984), in Japanese.

Preparation of Shaped Glasses through Sol-Gel Method, S. Sakka and K. Kamiya, *Mat. Sci. Res.*, **17**, Emergent Process Methods for High-Technology Ceramics, 83 (1984).

Ceramics for Prosthetic Application — Structural Control of Functional Materials, T. Kokubo and S. Ito, *Kagaku-to-Kogyo (Chemistry and Industry)* **36**, 533 (1983), Review in Japanese.

New Ceramics Produced by Unidirectional Cooling or Heating, T. Kokubo, *Kagaku (Chemistry)*, **38**, 604 (1983), Review in Japanese.

Properties and Applications of Unidirectionally Solidified Ceramics, T. Kokubo, *Kogyo Zairyo (Engineering Materials)*, **31** (13) 3 (1983), Review in Japanese.

Ceramics as Medical Inorganic Materials, T. Kokubo, *Kaigai-Kobunshi-Kenkyu*, **29** (11), 192 (1983), Review in Japanese.

Preparation of Glasses and Ceramics for Electrical Use based on Alkoxide and Unidirectional Solidification Methods, S. Sakka and T. Kokubo, *Japan. J. Appl. Phys.*, **22**, Supplement 22-2, 3 (1983), Review.

Low Temperature Preparation of Oxide Glasses and Ceramics from Metal Alkoxide Solutions, S. Sakka, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 376 (1983), Review.

Fabrication of New Ceramics by Unidirectional Heating or Cooling, T. Kokubo, *Kagaku-to-Kogyo (Chemistry and Industry)*, **58**, 157 (1984), Review in Japanese.

Amorphous Materials, S. Sakka, *Kogyo Zairyo (Engineering Materials)*, **32** (1), 48 (1984).

Preparation of Amorphous Materials based on the Sol-Gel Change and its Applications, S. Sakka, *Yoyuen (Molten Salts)*, **27**, 27 (1984), Review in Japanese.

Introduction to Optical Ceramics, S. Sakka, *Seramikkusu (Ceramics)*, **19**, 269 (1984), Review in Japanese.

Synthesis of $\alpha\text{-Fe}_2\text{O}_3$ Particles with Needle Like Shape and Topotaxy during Reduction of the $\alpha\text{-Fe}_2\text{O}_3$ Particles, Y. Bando, Y. Ikeda, and K. Okuda, *Asahigarasu Kogyogifutsu Shoreikai Kenkyuhokoku*, **43**, 199 (1983).

Oxidation of Iron (II) in Acidic Chloride Solutions, M. Kiyama, T. Akita, and T. Takada, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 335 (1983).

Surface and Interface Magnetism from Mössbauer Spectroscopy Using Surface-Selectively Enriched Samples, T. Shinjo and T. Takada, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 397 (1983).

Electronic State of Fe^{4+} Ions in Perovskite-Type Oxides, M. Takano and Y. Takeda, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 406 (1983).

Preparation of Ultra-fine Particles from Liquid Phase and their Application, Y. Bando, *Ceramics*, **19**, 483 (1984), in Japanese.

Synthesis of Fe-Mg Multilayered Films with Artificial Superstructures, T. Shinjo, K. Kawaguchi, R. Yamamoto, N. Hosoi, and T. Takada, *Chemistry Letters*, 59 (1984).

Studies of Interfaces by means of Mossbauer Spectroscopy, T. Shinjo, *Hyomen*

Kagaku (Surface Science), **5**, 47 (1984), in Japanese.

Mossbauer Studies of Very Thin Oxide Layer on Fe Surface, T. Shinjo, T. Iwasaki, T. Shigematsu, and T. Takada, *Japan. J. Appl. Phys.*, **23**, 283 (1984).

Interface Magnetism of Fe-Sb Multilayered Films with Artificial Superstructure from ^{57}Fe and ^{121}Sb Mossbauer Spectroscopy, Neutron Diffraction and FMR Experiments, T. Shinjo, N. Hosoi, K. Kawaguchi, T. Takada, Y. Endoh, Y. Ajiro, and Jean M. Friedt, *J. Phys. Soc. Japan*, **52**, 3154 (1983).

Application of the Wet Method of Preparation of Spinel Ferrites from by-produced Iron Sulfate, T. Takada, *Kankyogijutsu*, **13**, 456 (1984), in Japanese.

Magnetic Properties of Surface and Interface, T. Shinjo, *Monthly Physics*, **5**, 360 (1984), in Japanese.

Polymer Chemistry

Solid State C-13 NMR Study of Chain Dynamics and Morphology of Crystalline Polymers, R. Kitamaru, *Bull. Magn. Reson.*, **5**, 238 (1983).

Relationships between Carbon-13 Chemical Shifts and Conformations of Oligosaccharides and Cellulose in the Solid State, F. Horii, A. Hirai, and R. Kitamaru, *Bull. Magn. Reson.*, **5**, 190 (1983).

CP/DD/MAS Carbon-13 NMR Study of Native and Regenerated Cellulose, A. Hirai, F. Horii, and R. Kitamaru, *Bull. Magn. Reson.*, **5**, 233 (1983).

Solid-State ^{13}C -NMR Study of Conformations of Oligosaccharides and Cellulose —Conformation of CH_2OH Group about the Exo-Cyclic C-C Bond, F. Horii, A. Hirai, and R. Kitamaru, *Polym. Bull.*, **10**, 357 (1983).

Solid-State High-Resolution ^{13}C NMR Studies of Polymers, R. Kitamaru, F. Horii, A. Hirai, K. Murayama, and T. Akita, Kasen Koensyu (*Ann. Rep. Res. Inst. Chem. Fibers, Japan*), **40**, 59 (1983), in Japanese.

Theoretical Calculation of Carbon-13 Spin Relaxation Parameters for Motional Processes Described by a Three-Correlation-Time Model, K. Murayama, F. Horii, and R. Kitamaru, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 229 (1983).

Structures of Chain-like Polymers in the Noncrystalline and Semicrystalline States, K. Kaji, *Monthly Physics*, **4**, 588 (1983), Review in Japanese.

Studies of Polymers by Neutron Scattering, K. Kaji and K. Kurita, *Monthly Physics*, **5**, 103 (1984), Review in Japanese.

Measurements of Neutron Incoherent Inelastic Scattering in Solid Polymers. Part 2. Normal Vibrational Frequency Distribution in Solid Polymers, T. Kanaya,

K. Kaji, H. Urakawa, R. Kitamaru, T. Akiyoshi, M. Ono, F. Yoshida, S. Yamada, H. Yamaoka, T. Matsuyama, and S. Okamoto, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 214 (1983).

Motion of Individual Polymeric Chains, K. Inoue, K. Kaji, Y. Kiyanagi, H. Iwasa, and K. Jinguji, *KENS Report*, **3**, 32 (1982).

Molecular Dynamics of Polyisobutylene Rubber, K. Kaji, H. Urakawa, R. Kitamaru, K. Inoue, and Y. Kiyanagi, *KENS Report*, **3**, 38 (1982).

Low Frequency Vibrations in Oriented Poly(vinyl alcohol) Film, K. Kaji, H. Urakawa, R. Kitamaru, K. Inoue, and Y. Kiyanagi, *KENS Report*, **3**, 54 (1982).

Low Frequency Vibrations in Oriented Poly(isobutylene oxide) Film, K. Kaji, H. Urakawa, R. Kitamaru, K. Inoue, and Y. Kiyanagi, *KENS Report*, **3**, 56 (1982).

Low Frequency Vibrations in Oriented Isotactic Polypropylene Film, K. Kaji, H. Urakawa, R. Kitamaru, K. Inoue, and Y. Kiyanagi, *KENS Report*, **3**, 58 (1982).

Diffusive Motions in Rubbers, K. Inoue, K. Kaji, T. Kanaya, and H. Akie, *KENS Report*, **4**, 120 (1983).

Molecular Dynamics of Polyisoprene Rubber, T. Kanaya, K. Kaji, H. Urakawa, R. Kitamaru and K. Inoue, *KENS Report*, **4**, 123 (1983).

Molecular Dynamics of Polybutadiene Rubber, T. Kanaya, K. Kaji, H. Urakawa, R. Kitamaru, and K. Inoue, *KENS Report*, **4**, 125 (1983).

Neutron Inelastic Scattering of Partially Deuterated Poly(vinyl alcohol) Film, T. Kanaya, K. Kaji, H. Urakawa, and R. Kitamaru, *KENS Report*, **4**, 141 (1983).

Neutron Inelastic Scattering of Partially Deuterated Poly(vinyl acetate) Film, T. Kanaya, K. Kaji, H. Urakawa, R. Kitamaru, and K. Inoue, *KENS Report*, **4**, 143 (1983).

Neutron Scattering by Polymers, K. Kurita and K. Kaji, *Proceedings of the Meeting on BSF Future Prospects*, **2** (KEK Internal 83-7), 308 (1983).

Isolation of Deuterated Histones from Yeast Grown on Media Dissolved in $^2\text{H}_2\text{O}$, K. Hamana, K. Mita, S. Ichimura, M. Zama, K. Kaji, and N. Nimura, *FEBS Lett.*, **160**, 21 (1983).

Properties and Molecular Motions of Polymer Materials, R. Kitamaru and K. Kaji, *Report of the First Meeting, KUR Sen-mon Kenkyukai*, **58**, 34 (1983), Review in Japanese.

Fundamentals of Ultra-High Modulus Fibers-Mainly Based on Neutron Scattering, K. Kaji, *Kagai Kobunshi Kenkyu*, **29**, 183 (1983), Review in Japanese.

Role of Cold Neutron Scattering in the Functional Studies of Materials, K.

Kaji, *Report of the Second Meeting, KUR Sen-mon Kenkyukai*, **59**, 100 (1984), in Japanese.

The Thermodynamic Properties of Polytetrafluoroethylene, S. Failau, H. Suzuki, and B. Wunderlich, *J. Polym. Sci.: Polym. Phys. Ed.*, **22**, 379 (1984).

Stereocomplex of Poly(methylmethacrylate) Structure and Application, T. Miyamoto, *Kagaku Kogyo (Chemical Industry)*, 425 (1983), Review in Japanese.

Light Scattering from Ternary Solutions. 1. Dilute Solutions of Polystyrene and Poly(methyl methacrylate), T. Fukuda, M. Nagata, and H. Inagaki, *Macromolecules*, **17**, 548 (1984).

Aqueous Gel Permeation Chromatography of Electrolytes and Polyelectrolytes, 2. Donnan Salt Exclusion Effect, S. Kadokura, T. Miyamoto, and H. Inagaki, *Makromol. Chem.*, **184**, 2593 (1983).

Persistence Length of Cellulose and Cellulose Derivatives in Solution, K. Kamide, M. Saito and H. Suzuki, *Makromol. Chem., Rapid Commun.* **4**, 33 (1983).

Free-Radical Copolymerization II. Volume Contraction Factors for Some Copolymerization Systems. an Approach Based on Partial Specific Volume, Y.-D. Ma, T. Fukuda, and H. Inagaki, *Polym. J.*, **15**, 673 (1983).

1-Chloro-1, 3-butadiene Copolymers V. Composition and Compositional Distribution in the Copolymer with Styrene Studied by Thin-Layer Chromatography, S. Kohjiya, K. Iwata, S. Yamashita, T. Miyamoto and H. Inagaki, *Polym. J.*, **15**, 869 (1983).

Interactions between Unlike Polymers versus Dilute Solution Properties of Copolymers, T. Fukuda and H. Inagaki. *Pure & Appl. Chem.*, **55**, 1541 (1983). Review.

The Chemistry and Structure of Wool, T. Miyamoto, *Sen-i Gakkaishi (J. Soc. Fiber Sci. Tech., Japan)*, **40**, 125 (1984), Review in Japanese.

Fibrillation of the Cortex of Merino Wool Fibers by Freezing-Thawing Treatment, H. Ito, H. Sakabe, T. Miyamoto and H. Inagaki, *Textile Res. J.*, **54**, 397 (1984).

Diffusion and Solution of Methanol Vapor in Poly(2-Vinylpyridine) Block Polyisoprene and poly(2-vinylpyridine) Block Polystyrene, H. Odani, M. Uchikura, Y. Cgino, and M. Kurata, *J. Membrane Sci.* **15**, 193 (1983).

Dynamic Light Scattering Studies of Polymer Solutions. 2. Translational Diffusion and Intramolecular Motions of Polystyrene in Dilute Solutions at the θ Temperature, Y. Tsunashima, N. Nemoto, and M. Kurata, *Macromolecules*, **16**, 1184 (1983).

Concentration Dependence of the Translational Diffusion Coefficient of Un-

perturbed Flexible Chains, Y. Tsunashima and N. Nemoto, *Macromolecules*, **16**, 1941 (1983).

Dynamics of Molten Polymers on the Sub-Molecular Scale, F. Boue, M. Nierlich, and K. Osaki, *Faraday Symp. Chem. Soc.*, **18**, 83 (1983)

Nonlinear Viscoelasticity of Polymer Concentrates, K. Osaki, *Nihon Reoroji Gakkaishi (J. Soc. Rheology, Japan)*, **12**, 22 (1984)

Nonlinear Viscoelasticity of Concentrated Polymer Systems, K. Osaki and M. Doi, *Polymer Eng. Rev.*, **4**, 35 (1984).

Mathematical Simulation of High-Speed Melt-Spinning, K. Katayama, *Kasen Koensyu (Ann. Rep. Res. Inst. Chem. Fibers, Japan)*, **40**, 85 (1983), in Japanese.

Structural analysis of β form poly(ρ -xylylene) starting from a high-resolution image, S. Isoda, M. Tsuji, M. Ohara, A. Kawaguchi, and K. Katayama, *Polymer*, **24**, 1155 (1983).

Direct Observation of Dislocations in Polymer Single Crystals, S. Isoda, M. Tsuji, M. Ohara, A. Kawaguchi, and K. Katayama, *Makromol. Chem., Rapid Commun.* **4**, 141 (1983).

Crystal Structure of Poly(2-chloro- ρ -xylylene), S. Isoda, T. Ichida, A. Kawaguchi, and K. Katayama, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 222 (1983).

High-Temperature Phases of Poly(ρ -Xylylene), S. Isoda, A. Kawaguchi, and K. Katayama, *J. Polymer Sci., Polymer Phys. Ed.*, **22**, 669 (1984).

Epitaxial synthesis of poly(ρ -xylylene), S. Isoda, *Polymer*, **25**, 615 (1984).

Ultradrawing at Room Temperature of High Molecular Weight Polyethylene. 3. Theoretical Analysis of SAXS Patterns of Unannealed and Annealed Samples, M. Matsuo, M. Tsuji, and R. St. John Manley, *Macromolecules*, **16**, 1505 (1983).

One-dimensional Mathematical Treatment of Small-angle X-ray Scattering from a System of Alternating Lamellar Phases, M. Matsuo, C. Sawatari, M. Tsuji, and R. St. John Manley, *J. Chem. Soc., Faraday Trans. 2*, **79**, 1593 (1983).

Image Analysis in the Electron Microscopy of Cellulose Protofibrils, M. Tsuji and R. St. John Manley, *Colloid & Polymer Sci.*, **262**, 236 (1984).

Organic Chemistry

Reduction by a Model of NAD(P)H. 42. Direct Evidence for One Electron Transfer Mechanism in the Reduction of Arenediazonium Salts, S. Yasui, K. Nakamura, and A. Ohno, *Tetrahedron Lett.*, **24**, 3331 (1983).

Reduction by a Model of NAD(P)H. 44. Transition Metal Catalyzed Reduction of Allylic Acetate, K. Nakamura, A. Ohno, and S. Oka, *Tetrahedron Lett.*, **24**, 3335 (1983).

Reduction by a Model of NAD(P)H. 45. Mechanism for the Dedizaoniation of Arenediazonium Salts Initiated by One-Electron Transfer from an NAD(P)H Model, S. Yasui, K. Nakamura, and A. Ohno, *J. Org. Chem.*, **49**, 878 (1984).

NAD(P)⁺-NAD(P)H Model. 46. Kinetic Study on the Reduction with a Sulfur-Containing NAD(P)H Model, A. Ohno, H. Kobayashi, S. Oka, and T. Goto, *Tetrahedron Lett.*, **24**, 5123 (1983).

NAD(P)⁺-NAD(P)H Model. 47. Mechanism of the Formation of 1,4-Dihydronicotinamide in the Reaction of Pyridinium Salt and Amine, A. Ohno, S. Ushida and S. Oka, *Bull. Chem. Soc. Japan.*, **57**, 506 (1984).

Rhodium Catalyzed Reduction of Aryl Iodides with a Model of NAD(P)H (NAD(P)⁺-NAD(P)H Model. 48. S. Yasui, K. Nakamura, and A. Ohno, *Chemistry Lett.*, **377** (1984).

NAD(P)⁺-NAD(P)H Models. 49. Proximity Effects of a Phenyl Group on the Electron Transfer Process, A. Ohno, H. Kobayashi, T. Goto, and S. Oka, *Bull. Chem. Soc. Japan.*, **57**, 1279 (1984).

NAD(P)⁺-NAD(P)H Models. 50. Stereo-Controlled Reduction of Methyl 2-Oxo-3-methylpentanoate, A. Ohno, J.-H. Lee, T. Yasuma, and S. Oka, *Tetrahedron Lett.*, **25**, 1995 (1984).

Reduction of α , β -Unsaturated Carbonyl Compounds by a Model of NAD(P)H with Chlorotris(triphenylphosphine)rhodium. (NAD(P)⁺-NAD(P)H Model. part 51), K. Nakamura, M. Fujii, A. Ohno, and S. Oka, *Chemistry Lett.*, 925 (1984).

Electrochemical Isomerization of Sulfine, K. Nakamura, Y. Shizume, T. Sugiyama, A. Ohno, and S. Oka, *Phosphorous and Sulfur*, **16**, 153 (1983).

meso-Tetraphenylporphyrinatocobalt(II)-catalyzed Reduction of Ketones Promoted by Visible Light, T. Okamoto and S. Oka, *J. Molecular Catalysis*, **23**, 107 (1984).

Catalytic Nitrosation of Styrene by Nitric Oxide in the Presence of Cobalt Complex and BH₄⁻, T. Okamoto and S. Oka, *J. Chem. Soc., Chem. Commun.*, 289 (1984).

Oxygenation of Olefins under Reductive Conditions. Cobalt-Catalyzed Selective Conversion of Aromatic Olefins to Benzylic Alcohols by Molecular Oxygen and Tetrahydroborate, T. Okamoto and S. Oka, *J. Org. Chem.*, **49**, 1589 (1984).

Rhodium-Catalyzed Stereoselective Dehydrogenation of *cis*- and *trans*-Methylcyclohexanols by Molecular Oxygen, T. Okamoto, K. Sasaki, and S. Oka, *Chemistry Lett.*, 1247 (1984).

Selective Reduction of *N*-Substituted-3-carbamoyl Pyridinium Salts to the Corresponding Dihydropyridines Mediated by Low Valent Covalt Complexes,

T. Okamoto, S. Yamamoto, A. Ohno, and S. Oka, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 64 (1983).

The Reaction of Olefins with a Mixture of Iodine and Mercury(II) Thiocyanate. Predominant Formation of *vic*-Iodo(isothiocyanato)alkanes, N. Watanabe, S. Uemura, and M. Okano, *Bull. Chem. Soc. Japan.*, **56**, 2458 (1983).

Decarboxylative Ipso Halogenation of Mercury(II) Pyridinecarboxylates—Facile Formation of 3-Iodo- and 3-Bromopyridines, S. Uemura, S. Tanaka, M. Okano, and M. Hamana, *J. Org. Chem.*, **48**, 3297 (1983).

Selective Halogenation and Pseudohalogenation, M. Okano and S. Uemura, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 349 (1983), Review.

Stereo- and Regio-selective Halogenation and Pseudo-halogenation *via* Organometallic Compounds, S. Uemura and M. Okano, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 363 (1983), Review.

Organotellurium Compounds in Organic Synthesis, S. Uemura, *J. Synth. Org. Chem., Japan.*, **41**, 804 (1983), Review in Japanese.

Reaction of Olefins with a Mixture of Phenylselenenyl Chloride and Mercury (II) Thiocyanate. Selective Syntheses of β -(Phenylseleno)alkyl Isothiocyanates as Precursors of Vinylic Isothiocyanates, A. Toshimitsu, S. Uemura, M. Okano, and N. Watanabe, *J. Org. Chem.*, **48**, 4256 (1983).

Novel Oxidation of Alkyl Phenyl Tellurides and Telluroxides with *meta*-Chloroperbenzoic Acid: Replacement of Tellurium Moiety by Methoxy Group accompanied by Ring-Contraction and Phenyl Migration, S. Uemura and S. Fukuzawa, *Tetrahedron Lett.*, **24**, 4347 (1983).

A Novel, Simple Method for Transformation of C-Se to C-O Bonds, S. Uemura, S. Fukuzawa, and A. Toshimitsu, *J. Chem. Soc., Chem. Commun.*, 1501 (1983).

α -Elimination of Organic Halides from Organotellurium(IV) Halides, S. Uemura and S. Fukuzawa, *J. Organometal. Chem.*, **268**, 223 (1984).

New Preparative Method for 2-Arylpropanoic Acids by Oxidative Aryl Migration in Aryl α -Seleno- and Aryl α -Telluroethyl Ketones, S. Uemura, S. Fukuzawa, T. Yamauchi, K. Hattori, S. Mizutaki, and K. Tamaki, *J. Chem. Soc., Chem. Commun.*, 426 (1984).

Kinetic Study of the Carboxymethylation of Aryl Iodides catalyzed by Palladium-Triphenylphosphine Complexes, K. Inamasa, K. Kudo, and N. Sugita, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 282 (1983).

Cobalt-catalyzed Alkoxyacylation of Monosubstituted Methyl Chlorides, T. Suzuki, T. Matsuki, K. Kudo, and N. Sugita, *Nippon Kagaku Zasshi (J. Chem. Soc. Japan., Chemistry and Industrial Chemistry)*, 1482 (1983), in Japanese.

n Butyl-lithium-induced Cleavage of Several Dithioacetals Derived from Diaryl Ketones, H. Ikehira, S. Tanimoto and T. Oida, *J. Chem. Soc. Perkin Trans. I*, 1223 (1984).

The Formation of 1,2-Bis(alkylthio)-1,2-diphenylethanes by the Lithium Diisopropylamide-induced Fragmentation of Dibenzyl Disulfide Followed by the Trapping with Some Alkyl Halides, H. Ikehira and S. Tanimoto, *Bull. Chem. Soc. Japan.*, **57**, 1423 (1984), Note.

A New 1,2-Rearrangement of Carbon from Sulfur to Carbon in 2,2-Diaryl-1,3-dithianes, H. Ikehira and S. Tanimoto, *J. Chem. Soc., Chem. Commun.*, 1354 (1983), Letter.

A Facile Synthesis of Dialkyl Esters of 3-Dimethylamino-2,4-dialkylpentanedioic Acids, S. Tanimoto, H. Ikehira, T. Oida, and T. Kokubo, *Synthesis*, 787 (1983), Commun.

The Bovine Serum Albumin-2-Phenylpropane-1,2-diolatodioxo-osmium (VI) Complex as an Enantioselective Catalyst for *cis*-Hydroxylation of Alkenes, T. Kokubo, T. Sugimoto, T. Uchida, S. Tanimoto, and M. Okano, *J. Chem. Soc., Chem. Commun.*, 769 (1983), Letter.

A Facile Synthesis of *N,N*-Dialkylpropanesulfenamides and -benzenesulfenamides, H. Ikehira and S. Tanimoto, *Synthesis*, 716 (1983), Communication.

The Use of Acrylic Compounds in Organic Synthesis. Part-I, S. Tanimoto and H. Ikehira, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 120 (1983), Review.

The Lithium Diisopropylamide-induced Fragmentation of 1,3-Dithiolane Derivatives of Several Ketones Having α -Hydrogen, H. Ikehira, S. Tanimoto, and T. Oida, *Bull. Chem. Soc. Japan.*, **56**, 2537 (1983), Note.

Base-induced Fragmentation of Ethanedyl S,S-Acetals Bearing Two Aromatic Substituents at C-2, H. Ikehira, S. Tanimoto, T. Oida, and M. Okano, *J. Org. Chem.*, **48**, 1120 (1983), Note.

Reductions with Chiral Dihydropyridine Reagents. Y. Inouye, J. Oda, and N. Baba, "Asymmetric Synthesis" ed. by J.D. Morrison. Vol. 2, Part A, 91 (1983), Review Monograph.

Asymmetric Reduction by an NADH Model Compound with L-Prolinamide in the N_1 -Substituent, F. Hoshida, N. Baba, J. Oda, and Y. Inouye, *Agric. Biol. Chem.*, **47**, 2141 (1983), Communication.

Addition Effect of Some Macrocyclic Polyethers on the Asymmetric Reduction with Chiral NADH Model Compounds, N. Baba, J. Oda, and Y. Inouye, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 113 (1983), Note.

Synthesis and Complexation of an Optically Active Aza-Crown Ether, Y. Kawa-

kami, Y. Yamamoto, J. Oda, Y. Inouye, and S. Sawada, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 117 (1983), Communication.

Asymmetric Reduction with C_1 - and C_2 -Symmetric NADH Model Compounds Containing Chiral 1,1'-Binaphthyls, M. Amano, M. Watanabe, N. Baba, J. Oda, and Y. Inouye, *Bull. Chem. Soc. Japan*, **56**, 3672 (1983).

Stereochemical Behavior of an NADH Model Compound Carrying L-Proline at 3,5-Positions, M. Amano, N. Baba, J. Oda, and Y. Inouye, *Agric. Biol. Chem.*, **48**, 1371 (1984), Communication.

Stereoselectivity in the Aldol reaction. The Use of Chiral and Achiral Oxazolines as Their Boron Azaenolates, A.I. Meyers and Y. Yamamoto, *Tetrahedron*, **40**, 2309 (1984).

Three New 8,9-Seco-ent-kaurene Diterpenoids from *Rabdosia shikokiana* (Labiateae), M. Node, N. Ito, K. Fuji and E. Fujita, *Chem. Pharm. Bull.*, **30**, 2639 (1982).

Radical Cation Induced Reductive Dehalogenation of *ortho*- and *para*-Halophenols and their Derivatives, M. Node, T. Kawabata, K. Ohta, K. Watanabe, K. Fuji, and E. Fujita, *Chem. Pharm. Bull.*, **31**, 749 (1983).

Antitumor Activity of Diterpenoids, Trichorabdals A, B, and C, and the Related Compounds: Synergism of Two Active Sites, M. Node, M. Sai, K. Fuji, E. Fujita, S. Takeda, and N. Unemi, *Chem. Pharm. Bull.*, **31**, 1433 (1983).

The Chemistry on Diterpenoids in 1980, E. Fujita, K. Fuji, Y. Nagao, M. Node, and M. Ochiai, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 142 (1983).

Radiosensitization of Hypoxic HeLa S3 Cells *in vitro* by a New Type of Radiosensitizer: Spermine and Spermidine Amides with Nitro Groups, C. Murayama, Y. Nagao, E. Fujita, T. Asao, M. Yasumoto and T. Mori, *Int. J. Radiat. Biol.*, **44**, 497 (1983).

Oxidation of 2-Substituted Allylsilane to Conjugated Enal Using Hypervalent Organoiodine Compound and Synthesis of α -Methylene γ - and δ -Lactones, M. Ochiai, E. Fujita, M. Arimoto, and H. Yamaguchi, *Tetrahedron Lett.*, **24**, 777 (1983).

A New Synthesis of γ -Hydroxyvinylstannanes and Silanes Utilizing β -Stannylvinyl and β -Silylvinyl Sulfones, M. Ochiai, T. Ukita, and E. Fujita, *Tetrahedron Lett.*, **24**, 4025 (1983).

A New Method for Regioselective Synthesis of α -Substituted Allylsilanes and its Application to the Synthesis of *E*- and *Z*-Tagetones, M. Ochiai, K. Sumi, E. Fujita, and S. Tada, *Chem. Pharm. Bull.*, **31**, 3346 (1983).

A New Stereoselective Synthesis of Vinylsilanes Utilizing Vinyl Sulfones, M. Ochiai, T. Ukita, and E. Fujita, *Chemistry Lett.*, 1457 (1983).

Development of New Hypoxic Cell Sensitizers: Amides of Nitrobenzoic Acid with

Spermidine and Spermine, Y. Nagao, S. Takao, E. Fujita, C. Murayama, T. Mori, T. Asao, and T. Suzue, *Experimental*, **39**, 1116 (1983).

Silicon-Assisted Ring Opening of Cyclopropyl Ketons with Boron Trifluoride-Acetic Acid Complex, M. Ochiai, K. Sumi, and E. Fujita, *Chem. Pharm. Bull.*, **31**, 3931 (1983).

Selective Demethylation of Aliphatic Methyl Ether in the Presence of Aromatic Methyl Ether with the Aluminum Chloride-Sodium Iodine-Acetonitrile System, M. Node, K. Ohta, T. Kajimoto, K. Nishide, E. Fujita, and K. Fuji, *Chem. Pharm. Bull.*, **31** 4178 (1983).

Hard Acid and Soft Nucleophile System. VII. A Convenient Reduction of Functionalized Polyarenes to Parent Polyarenes, M. Node, K. Nishide, T. Kawabata, K. Ohta, K. Watanabe, K. Fuji, and E. Fujita, *Chem. Pharm. Bull.*, **31** 4306 (1983).

Lythraceous Alkaloids. XII. Circular Dichroism Studies on Lythranine-Type Alkaloids, K. Fuji, T. Yamada, E. Fujita, K. Kuriyama, T. Iwata, M. Shiro, and H. Nakai, *Chem. Pharm. Bull.*, **32** 55 (1984).

Lythraceous Alkaloids. XIII. X-Ray Determination of the Molecular Structures of *O*-Methyllythranidine *N*, *O*, *O*-Triformate, 22-Bromolythranine *N*, *O*, *O*-Triacetate, and *O*-Methyldeacetyllythramine, K. Fuji, T. Yamada, E. Fujita, H. Nakai, and M. Shiro, *Chem. Pharm. Bull.*, **32**, 63 (1984).

Lythraceous Alkaloids. XIV. Kinetic Equalization of Carbon-13 Nuclear Magnetic Resonance Chemical Shifts in *N*, *O*-Dimethyllythranidine, a Cyclophane Bearing Asymmetric Carbon Atoms, K. Fuji, T. Yamada, and E. Fujita, *Chem. Pharm. Bull.*, **32**, 70 (1984).

Regioselective Ring Opening of Unsymmetrical Cyclic Ethers with the AlCl_3 - NaI -Acetonitrile System; Application to Hydroxylation of *ent*-kaurene, M. Node, T. Kajimoto, K. Nishide, E. Fujita, and K. Fuji, *Tetrahedron Lett.*, **25**, 219 (1984).

Total Synthesis of Parabactin, a Spermidine Siderophore, Y. Nagao, T. Miyasaka, Y. Hagiwara, and E. Fujita, *J. Chem. Soc. Perkin Trans. I.*, 183 (1984).

A New Synthesis of Allyl Nitrates from Allylmetal (Group IVb) Compounds and Thallium (III) Nitrate, M. Ochiai, E. Fujita, M. Arimoto, and H. Yamaguchi, *Chem. Pharm. Bull.*, **32**, 887 (1984).

Organic Synthesis Utilizing Thiazolidine and the Related Heterocycles, E. Fujita, *Heterocycles*, **21**, 41 (1984).

A New Synthesis of Olefins *via* the Elimination Reaction of β -Tributylstannyl Organosulfur Compounds, M. Ochiai, T. Ukita, E. Fujita, and S. Tada, *Chem. Pharm. Bull.*, **32**, 1829 (1984).

Design, Synthesis, and Activity of New Hypoxic-Cell Sensitizers: Spermine and Spermidine Amides Having Nitro Groups, E. Fujita and T. Mori, "Modification of Radiosensitivity in Cancer Treatment", Ed. T. Sugahara, Academic Press Japan Inc. 121-128 (1984).

Trichorabdol F Acetate, $C_{22}H_{28}O_7$, R.P. Kashyap, W.H. Watson, D.A. Grassie, M. Node, M. Sai, E. Fujita, and K. Fuji, *Acta Cryst.*, **C40**, 515 (1984).

Antitumor Diterpenoids in *Rabdosia Trichocarpa*, K. Fuji and M. Node, *Rev. Latinoamer. Quim.*, **14**, 55 (1983).

Hard-Soft Affinity Inversion: Dehalogenation of α -Haloketones, K. Fuji, M. Node, T. Kawabata, and M. Fujimoto, *Chemistry Lett.*, 1153 (1984).

General Synthesis of 1-Ethylthio-2-nitroolefins, M. Node, T. Kawabata, M. Fujimoto and K. Fuji, *Synthesis*, 234 (1984).

Design of Combination Systems Consisting of a Hard Acid and a Soft Nucleophile —Application to the Bond Cleavage Reactions—, K. Fuji and M. Node, *Yuki-gosei Kagaku (J. Synth. Org. Chem. Japan)*, **42**, 193 (1984).

Biochemistry

Classification of Proteins into Groups Based on Amino Acid Composition and Other Characters. I. Angular Distribution, K. Nishikawa, Y. Kubota, and T. Ooi, *J. Biochem.* **94**, 981 (1983).

Classification of Proteins into Groups Based on Amino Acid Composition and Other Characters. II. Grouping into Four Types, K. Nishikawa, Y. Kubota, and T. Ooi, *J. Biochem.* **94**, 997 (1983).

Structural Homology of Lens Crystallins. II. Homology Expressed by Correlation Coefficients and Hydrophathy Profiles, R.J. Siezen, E.A. Owen, Y. Kubota, and T. Ooi, *Biochim. Biophys. Acta*, **748**, 48 (1983).

Cornformational Flexibility of Bovine Pancreatic Ribonuclease A, S. Ihara and T. Ooi, *J. Phys. Soc. Japan* **52**, 4407 (1983).

The *erbB* Gene of Avian Erythroblastosis Virus is a Member of the *src* Gene Family, T. Yamamoto, T. Hishida, N. Miyajima, S. Kawai, T. Ooi, and K. Toyoshima, *Cell*, **35**, 71 (1983).

Chromatographic Analysis of Suberimidate-Crosslinked Lysine, O. Ohara and S. Takahashi, *J. Liquid Chromatography* **7**, 1665 (1984).

Assessment of Secondary-Structure Prediction of Proteins Comparison of Computerized Chou-Fasman Method with Others, K. Nishikawa, *Biochim. Biophys. Acta*, **748**, 285 (1983).

Solvent Effects on a Protein Molecule: A Theoretical Inspection, K. Nishikawa, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 247 (1983).

Properties of α -Amino- ϵ -caprolactam Racemase from *Achromobacter obae*, S.A. Ahmed, N. Esaki, H. Tanaka, and K. Soda, *Agric. Biol. Chem.*, **47**, 1887 (1983).

Assay Methods of Vitamin B6. 3. Determination of Enzyme-Bound Vitamin B6 and Mode of Binding. K. Tanizawa and K. Soda, *Vitamins*, **57**, 451 (1983), Review in Japanese.

Enzymatic Synthesis of Se-Substituted L-Selenocysteine with Tryptophan Synthase, N. Esaki, H. Tanaka, E.W. Miles, and K. Soda, *FEBS Lett.*, **161**, 207 (1983)

Synthesis of Amino Acids with Pyridoxal 5'-phosphate Enzymes, H. Tanaka, N. Esaki, and K. Soda, *Bull. Inst. Chem. Res., Kyoto Univ.* **61**, 51 (1983), Review.

A Rapid Method of Purification of Leucine Dehydrogenase by Affinity Chromatography, T. Ohshima, S. Ito, and K. Soda, *Bull. Inst. Chem. Res., Kyoto Univ.*, **61**, 109 (1983).

Preparation of Isotopically-Labeled Amino Acids with L-Methionine γ -Lyase, K. Soda, N. Esaki, H. Tanaka, and S. Sawada, *Enzyme Technology*, **189** (1983).

Synthesis of D-cysteine by a new pyridoxal enzyme, K. Soda, *Trends in Biochem. Sci. (TIBS)*, **8**, 152 (1983), Review.

Affinity Labeling of Enzymes with Suicide Substrates, K. Tanizawa, and K. Soda, *Kagaku to Seibutsu*, **21**, 742 (1983), Review in Japanese.

Microbial Distribution of Selenocysteine Lyase, P. Chocat, N. Esaki, T. Nakamura, H. Tanaka, and K. Soda, *J. Bacteriol.*, **156**, 455 (1983).

A New Type Superoxide Dismutase from *Nocardia asteroides*. T. Kido, and K. Soda, *Tanpakushitsu Kakusan Koso (Protein, Nucleic Acid, Enzyme)*, **28**, 72 (1983), Review in Japanese.

An Improved Procedure for Isolation and Purification of Methionine γ -Lyase from *Pseudomonas putida*, T.T. Berezov, V.A. Zanin, K. Soda, N. Esaki, and K. Sugie, *Bopr. Med. Khimii*, **29**, 131 (1983), in Russian.

Enzymatic Synthesis of S-Substituted L-Cysteines with Tryptophan Synthase of *Escherichia coli*, N. Esaki, H. Tanaka, E.W. Miles, and K. Soda, *Agric. Biol. Chem.* **47**, 2861 (1983).

Determination of L- and D-2-Halopropanoic Acids and 2-Halobutanoic Acids with Bacterial Dehalogenases, K. Motosugi, N. Esaki, and K. Soda, *Anal. Lett.*, **16**, 509 (1983).

An Inactive Form of Coenzyme in ω -Amino Acid: Pyruvate Transaminase,

K. Soda, *Vitamins* **57**, 689 (1983), Review in Japanese.

Bacterial Selenocysteine Lyase, P. Chocat, N. Esaki, T. Nakamura, H. Tanaka, and K. Soda, *Ganryu Aminosan (Sulfur Amino Acids)* **6**, 171 (1983), in Japanese.

L-Methionine γ -Lyase: An Improved Purification Procedure and Subunit Structure, T. Nakayama, N. Esaki, K. Yonaha, H. Tanaka, and K. Soda, *Ganryu Aminosan (Sulfur Amino Acids)* **6**, 175 (1983) in Japanese.

Bioconversion of Lipophilic Compounds by Immobilized Biocatalysts in Organic Solvents, K. Soda, *Trends in Biochem. Sci. (TIBS)*, **8**, 428 (1983), Review.

Reaction and Regulation Mechanisms of Selenocysteine β -Lyase, N. Esaki, N. Karai, H. Tanaka, and K. Soda, *Chem. & Biol. Aspects of VB6 Catal.: Part A* **329** (1984).

Immobilized fungal mycelia, K. Soda, *Trends in Biochem. Sci. (TIBS)* **9**, 41 (1984), Review.

Preparation of D- or L-Selenomethionine from DL-Selenomethionine and of D-Selenomethionine from L-Selenomethionine, K. Goto, K. Unno, A. Takeda, O. Tamemasa, N. Esaki, and K. Soda, *Yakugaku Zasshi (J. Pharmaceutical Soc. Japan)* **104**, 308 (1984), in Japanese.

Reaction Mechanism of Low Substrate Specific Amino Acid Racemase of *Pseudomonas striata*, S. Sawada, N. Esaki, T. Yagi, and K. Soda, *Bull. of Kyoto Univ. of Education* **64**, 21 (1984).

Selenocysteine β -Lyase: a Novel Pyridoxal Enzyme, K. Soda, N. Esaki, T. Nakamura, N. Karai, P. Chocat, and H. Tanaka, *Chem. & Biol. Aspects of VB6 Catal.: Part A* **319** (1984).

Multiple Use of Enzymes. (New Developments of Biotechnology), K. Soda, *Kagaku Zoukan, (Chemistry Supplement)*, **103**, 81 (1984), Review in Japanese.

Stereochemistry of Ornithine Decarboxylase Reaction, Y. Asada, K. Tanizawa, K. Nakamura, M. Moriguchi, and K. Soda, *J. Biochem. (Tokyo)* **95**, 277 (1984).

D-Glucosaminase Dehydratase: Spectrometric Properties of the Enzyme-Bound Pyridoxal 5'-Phosphate, R. Iwamoto, Y. Imanaga, and K. Soda, *J. Biochem. (Tokyo)* **95**, 13 (1984).

Enzymological Aspects of Halo Acid Dehalogenation, K. Motosugi, and K. Soda, *Tanpakushitsu Kakusan Koso (Protein Nucleic Acid Enzyme)* **29**, 101 (1984), Review in Japanese.

The Effect of Carboxylates and Halides on L-Lysine 6-Aminotransferase-Catalyzed Reactions, T. Yoshimura, K. Tanizawa, H. Tanaka, and K. Soda, *J. Biochem. (Tokyo)* **95**, 559 (1984).

Inactivation of Amino Acid Racemase by *S*-(*N*-Methylthiocarbamoyl)-D,L-cysteine, T. Kimura, N. Esaki, H. Tanaka, and K. Soda, *Agric. Biol. Chem.* **48**, 383 (1984).

S-(*N*-Methylthiocarbamoyl)-L-cysteine, a suicide substrate of L-methionine γ -lyase, N. Esaki, T. Kimura, J. Goto, T. Nakayama, H. Tanaka, and K. Soda, *Biochim. Biophys. Acta* **785**, 54 (1984).

Modification of Leucine Dehydrogenase by Pyridoxal 5'-phosphate, T. Ohshima and K. Soda, *Agric. Biol. Chem.* **48**, 349 (1984).

Characterization of Primary Nitroalkane Oxidation by 2-Nitropropane Dioxygenase, T. Kido, K. Tanizawa, M. Ishida, K. Inagaki, and K. Soda, *Agric. Biol. Chem.* **48**, 1361 (1984).

Purification and Properties of Amino Acid Racemase from *Aeromonas punctata* subsp. *caviae*, K. Inagaki, K. Tanizawa, H. Tanaka, and K. Soda, *Chem. & Biol. Aspects of VB6 Catal.: Part A* **355** (1984).

Purification of High Molecular Weight Urokinase by Reverse-Immunoabsorption, K. Yokoigawa, K. Tanizawa, and K. Soda, *Agric. Biol. Chem.* **48**, 1587 (1984).

Purification of Bacterial L-Methionine γ -Lyase, T. Nakayama, N. Esaki, K. Sugie, T.T. Beresov, H. Tanaka, and K. Soda, *Anal. Biochem.* **138**, 421 (1984).

Purification and Properties of α -Hydroxyglutarate Dehydrogenase of *Peptococcus aerogenes*, S. Otawara, T. Ohshima, N. Esaki, and K. Soda, *Agric. Biol. Chem.* **48**, 1713 (1984).

Suicide Substrates-Enzyme Activated Irreversible Inhibitors, K. Soda and K. Tanizawa, *Taisha (Metabolism and Diseases)* **21**, 3 (1984) Review in Japanese.

The *Escherichia coli* Origin of Replication: Essential Structure for Bidirectional Replication, M. Takanami, S. Tabata, A. Oka, K. Sugimoto, H. Sasaki, S. Yasuda, and Y. Hirota, "Mechanisms of DNA Replication and Recombination", p. 257~273, 1983, Alan R. Liss Press, New York.

Sequence Organization of Replication Origin of the *Escherichia coli* K12 Chromosome, A. Oka, H. Sasaki, K. Sugimoto, and M. Takanami, *J. Molecular Biology*, **176**, 443 (1984).

Transforming Genes of RNA Tumor Viruses, H. Hanafusa and T. Takeya, "Nucleic Acid Research; Future Developments," p. 400~405, (1983) Academic Press, New York.

Transforming Activity of the *c-src* gene, H. Hanafusa, H. Iba, T. Takeya and F.R. Cross, "Cancer Cells", vol. 2, p. 1~7 (1984) Cold Spring Harbor Laboratory, New York.

Rous Sarcoma Virus Variants that Carry the Cellular *src* Gene Instead of the Viral *src* Gene Cannot Transform Chicken Embryo Fibroblasts, H. Iba, T. Takeya, F.R. Cross, T. Hanafusa, and H. Hanafusa, *Proc. Natl. Acad. Sci. USA*, **81**, 4424 (1984).